AMENDMENTS TO THE CLAIMS

This claim listing replaces all prior versions, and listings, of claims in the application:

1. – 4. (canceled).

5.   (previously presented)   A misfire detecting apparatus for an internal combustion engine comprising:

an operating condition detector that is configured to detect engine operating conditions inclusive of an engine rotation speed; and

a calculating section that is configured to:

judge whether a misfire occurred, based on the engine rotation speed detected by said operating condition detector;

output a misfire judgment signal;

calculate diagnosis data indicating a variation of said engine rotation speed;

calculate a threshold based on said engine operating conditions;

judge whether a misfire occurred, based on a first comparison between said diagnosis data and said threshold;

calculate data indicating an average correlation between said diagnosis data and said threshold, to cancel the misfire judgment, based on a result of a second comparison between said data indicating the average correlation and a threshold for cancellation judgment; and

eliminate said diagnosis data and said threshold when said diagnosis data is equal to or above said threshold, from samples for calculating said data indicating the average correlation.

6.   (previously presented)   A misfire detecting apparatus for an internal combustion engine according to claim 5, wherein said calculating section is also configured to prohibit the cancellation of the misfire judgment on the basis of said data indicating the average correlation, when the number of samples of said diagnosis data and said threshold used for the calculation of said data indicating the average correlation is less than a predetermined value.

7.   (previously presented)   A misfire detecting apparatus for an internal combustion engine comprising:

an operating condition detector that is configured to detect engine operating conditions inclusive of an engine rotation speed; and

a calculating section that is configured to:

judge whether a misfire occurred, based on the engine rotation speed detected by said operating condition detector;

output a misfire judgment signal;

calculate diagnosis data indicating a variation of said engine rotation speed;

calculate a threshold based on said engine operating conditions;

judge whether a misfire occurred, based on a first comparison between said diagnosis data and said threshold;

calculate data indicating an average correlation between said diagnosis data and said threshold, to cancel the misfire judgment, based on a result of a second comparison between said data indicating the average correlation and a threshold for cancellation judgment; and

prohibit the cancellation of the misfire judgment, when a misfire frequency during a period of time in which said average correlation is obtained, is equal to or above a predetermined value.

3

8.   (previously presented)   A misfire detecting apparatus for an internal combustion engine comprising:

an operating condition detector that is configured to detect engine operating conditions inclusive of an engine rotation speed; and

a calculating section that is configured to:

judge whether a misfire occurred, based on the engine rotation speed detected by said operating condition detector;

output a misfire judgment signal;

calculate diagnosis data indicating a variation of said engine rotation speed;

calculate a threshold based on said engine operating conditions;

judge whether a misfire occurred, based on a first comparison between said diagnosis data and said threshold;

calculate data indicating an average correlation between said diagnosis data and said threshold, to cancel the misfire judgment, based on a result of a second comparison between said data indicating the average correlation and a threshold for cancellation judgment; and

obtain said data indicating the average correlation, as an average value per the predetermined number of ignitions.

9.   (previously presented)   A misfire detecting apparatus for an internal combustion engine according to claim 8, wherein said calculating section is also configured to:

accumulate the misfire frequency per said predetermined number of ignitions, to output the misfire judgment signal when said accumulated value is equal to or above a predetermined value; and

prohibit an output of the misfire judgment signal on the basis of said accumulated value, based on the result of the second comparison between said data indicating the average correlation and said threshold for cancellation judgment.

10. – 14. (canceled).

15.   (previously presented) A misfire detecting method for an internal combustion engine comprising the steps of:

    detecting engine operating conditions inclusive of an engine rotation speed;

    calculating diagnosis data indicating a variation of said engine rotation speed;

    calculating a threshold based on said engine operating conditions;

    judging whether a misfire occurred, based on a first comparison between said diagnosis data and said threshold;

    calculating data indicating an average correlation between said diagnosis data and said threshold; and

    canceling the misfire judgment, based on a result of a second comparison between said data indicating the average correlation and a threshold for cancellation judgment,

wherein said step of calculating the data indicating the average correlation comprises the step of:

    eliminating said diagnosis data and said threshold when said diagnosis data is equal to or above said threshold, from samples for calculating said data indicating the average correlation.

16.   (previously presented) A misfire detecting method for an internal combustion engine according to claim 15, further comprising the step of:

    prohibiting the cancellation of the misfire judgment on the basis of said data indicating the average correlation, when the number of samples of said diagnosis data and said threshold used for the calculation of said data indicating the average correlation is less than a predetermined value.

17.   (previously presented) A misfire detecting method for an internal combustion engine comprising the steps of:

detecting engine operating conditions inclusive of an engine rotation speed;

calculating diagnosis data indicating a variation of said engine rotation speed;

calculating a threshold based on said engine operating conditions;

judging whether a misfire occurred, based on a first comparison between said diagnosis data and said threshold;

calculating data indicating an average correlation between said diagnosis data and said threshold;

canceling the misfire judgment, based on a result of a second comparison between said data indicating the average correlation and a threshold for cancellation judgment; and

prohibiting the cancellation of the misfire judgment, when a misfire frequency during a period of time in which said average correlation is obtained, is equal to or above a predetermined value.

18.   (previously presented) A misfire detecting method for an internal combustion engine comprising the steps of:

detecting engine operating conditions inclusive of an engine rotation speed;

calculating diagnosis data indicating a variation of said engine rotation speed;

calculating a threshold based on said engine operating conditions;

judging whether a misfire occurred, based on a first comparison between said diagnosis data and said threshold;

calculating data indicating an average correlation between said diagnosis data and said threshold, said step of calculating the data indicating the average correlation comprising the step of:

calculating said data indicating the average correlation, as an average value per the predetermined number of ignitions; and

canceling the misfire judgment, based on a result of a second comparison between said data indicating the average correlation and a threshold for cancellation judgment.

19.   (previously presented) A misfire detecting method for an internal combustion engine according to claim 18,

wherein said step of judging whether a misfire occurred comprises the steps of:

accumulating the misfire frequency per said predetermined number of ignitions by the predetermined number of times; and

outputting a misfire judgment signal when said accumulated value is equal to or above a predetermined value, and

wherein said step of canceling the misfire judgment comprises the step of:

prohibiting an output of the misfire judgment signal on the basis of said accumulated value, based on the result of the second comparison between said data indicating the average correlation and said threshold for cancellation judgment.